

Amendments to the Specification:

Please replace the paragraph, beginning at page 1, line 18, with the following rewritten paragraph:

Fig. 12 shows ~~a an example of a prior art configuration example~~ of such a voltage-controlled oscillator ~~in the past~~.

Please replace the paragraph, beginning at page 1, line 20, with the following rewritten paragraph:

In Fig. 12, reference numerals 1a and 1b denote oscillation transistors, 2a and 2b denote inductors, and 3a and 3b denote variable capacitance elements. Reference numeral 4 denotes a power supply terminal, 5 denotes a frequency control terminal, and 6 denotes a current source. A bias circuit and ~~so on other elements~~ are omitted in Fig. 12.

Please delete the paragraph, beginning at page 2, line 1:

~~Hereafter, operation of the voltage-controlled oscillator in the past will be described by referring to Fig. 12.~~

Please replace the paragraph, beginning at page 2, line 12, with the following rewritten paragraph:

As an oscillation frequency of the voltage-controlled oscillator oscillates in the neighborhood of the resonance frequency of the resonant circuit, it is possible, by adjusting the control voltage, to control the oscillation frequency of the voltage-controlled oscillator to be a desired frequency. The oscillation transistors 1a and 1b are intended to generate negative resistance and cancel losses due to a parasitic resistance component of the resonant circuit so as to satisfy an oscillation requirement.

Please replace the paragraph, beginning at page 2, line 21, with the following rewritten paragraph:

~~Here, a~~ A relationship between the control voltage and the oscillation frequency of the voltage-controlled oscillator is virtually determined by a characteristic of the variable capacitance element ~~,. It is desirable that and so the variable capacitance element to be used is desired to changes~~ the capacitance slowly in a wide range of the control voltage. It is because, in the case of ~~constituting~~ a PLL (phase lock loop) by using the voltage-controlled oscillator, a transient response characteristic and a noise band characteristic of a PLL circuit depend on frequency sensitivity ~~against with respect to~~ the control voltage. Therefore, if the frequency sensitivity is different according to the frequency, the characteristic of the PLL circuit itself respect to the control voltage is high, there is a problem that a phase noise characteristic is degraded because the frequency changes due to slight noise caused on a frequency control terminal.

Please replace the paragraph, beginning at page 3, line 13, with the following rewritten paragraph:

In reality, however, it is difficult to utilize the variable capacitance element of high linearity ~~because, The reason for this is that when implementing the voltage-controlled oscillator is formed on a semiconductor substrate, the costs are increased by introducing because of a special process for the sake of needed to forming~~ the variable capacitance element. Fig. 13 (a) shows the variable capacitance element utilizing a gate capacitance widely used in a CMOS process, and Fig. 13 (b) shows the variation of the gate capacitance in the case of applying the reference voltage to the gate of a MOS transistor and applying the control voltage to a drain-source side. Thus, in the case of the variable capacitance element utilizing the gate capacitance of the MOS transistor generally used, the capacitance value abruptly changes in the neighborhood of a threshold voltage (V_{th} in the drawing). ~~so that~~ Thus, the oscillation frequency also abruptly changes ~~in an area in the neighborhood of a threshold. Consequently, there arises a problem that the transient response characteristic and noise band characteristic of the PLL circuit using this VCO significantly change depending on the frequency.~~

Please delete the paragraph, beginning at page 4, line 8:

~~The circuit described below has already been proposed in order to solve such problems.~~

Please replace the paragraph, beginning at page 4, line 10, with the following rewritten paragraph:

Fig. 14 is ~~the a circuit~~ showing a technique of improving the linearity of the variable capacitance element ~~in the past~~ (refer to Japanese Patent Laid-Open No. 2001-352218 for instance). In Fig. 14, the same portions as those previously described are given the same symbols and a description thereof will be omitted.

Please replace the paragraph, beginning at page 5, line 5, with the following rewritten paragraph:

In the above method, the level shift circuit 13 is constituted by using the transistors such as FET as shown in Fig. 22. ~~It This~~ is because the level shift circuit 13 requires high input impedance in order to hold a DC voltage inputted from the frequency control terminal 5.

Please replace the paragraph, beginning at page 5, line 22, with the following rewritten paragraph:

As a countermeasure ~~against it~~, there ~~is~~ has been proposed a configuration wherein one voltage applied to each variable capacitance element is not the power supply voltage, and each variable capacitance element is interrupted from the power supply voltage with a blocking capacitor so as to supply the reference voltage different from the power supply voltage (refer to "Prospects of CMOS Technology for High-Speed Optical Communication Circuits" by Behzad Razavi, IEEE Journal of Solid-State Circuit, vol. 37, No. 9 September 2002, pp. 1135 – 1144 for instance).